

REMARKS

Claims 1-55 are pending, with claims 37-55 having been withdrawn from consideration and claims 1-36 having been elected with traverse for examination on the merits.

A. Claims 1-36 Are Definite

Claims 1-36 were rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite based on the phrase “a metal carbide selected from the group consisting of carbides and oxycarbides.” Office Action, p. 3. Applicants respectfully traverse.

At the outset, the full limitation objected to by the Examiner reads: a metal carbide selected from the group consisting of carbides and oxycarbides of a transitional metal, rare earth metal or actinide.” A claim is definite under 35 U.S.C. § 112, ¶ 2 as long as the scope of the claims is clear. MPEP § 2173 et. seq. There is nothing indefinite or unclear about this phrase. The Examiner’s asserted reasoning that an oxycarbide is different from a carbide because it contains oxygen atoms does not make the aforementioned phrase unclear - the scope of this limitation clearly includes both carbides and oxycarbides of a transitional metal, rare earth metal or actinide. Thus, withdrawal of this rejection is respectfully requested.

Claims 5 and 25 were further rejected under 35 U.S.C. § 112, ¶ 2 for lacking antecedent basis for “oxycarbides”. Applicants respectfully traverse. The term “oxycarbides” is introduced in claim 1, from which claim 5 ultimately depends, as well as in claim 16, from which claim 25 depends. Therefore, there is proper antecedent basis and withdrawal of this rejection is respectfully requested.

B. Claims 1-36 Are Patentable Over Lieber

Claims 1-36 were rejected under 35 U.S.C. §§ 102(e) and 103(a) over U.S. Pat. No. 6,190,634 (“Lieber”). Applicants respectfully traverse.

First, Lieber fails to teach, disclose or suggest, *inter alia*, a composition having an ammonia desorption peak at a temperature greater than 100°C as recited in claims 1-6. As discussed in the specification (p. 36), “A weak acid usually desorbs at approximately 100°C and a strong acid usually desorbs at temperature higher than 100°C.” Thus, the use in Lieber of “nanorods” as argued by the Examiner (p. 7 of Office Action), is not an inherent property alone, and without more, cannot teach or suggest that it be subsequently modified in the manner taught by Applicants to obtain the claimed ammonia desorption peak. As such, claims 1-6 are patentable over Lieber.

Furthermore, Lieber fails to teach, disclose or suggest the limitation “said nanostructures having been modified by an acidification treatment” as recited in claims 7-15. Specifically, Lieber, as admitted by the Examiner (p. 6 of Office Action), teaches the use of a halogen transport agent to form a carbide. Col. 5, line 57 to col. 6, line 43. In other words, the halogen transport agent, because it is used to form a carbide, is therefore not an acidification treatment used to subsequently modify the Applicants’ claimed (and already formed) carbide nanostructure. As such, claims 7-15 are patentable over Lieber. For the same reasons, the method claims 27-31 are also patentable over Lieber.

Finally, Lieber fails to teach, disclose or suggest the limitation “a solid acid in said interstitial spaces” as recited in claims 16-26. For example, Lieber does not teach or suggest that such solid acid may include zirconium and aluminum as recited in claims 19-21. As such, claims 16-26 are patentable over Lieber. For the same reasons, the method claims 32-36 are also patentable over Lieber.

Therefore, as claims 1-36 are all patentable over Lieber under 35 U.S.C. §§ 102 and 103, withdrawal of this rejection is respectfully requested.

No new matter has been added.

No additional fees are believed due. However, if any additional fees are necessary, the Commissioner is hereby authorized to charge such fees to Deposit Account No. 50-0540.

In view of the foregoing, Applicants respectfully submit that the claims are in condition for allowance and such action is earnestly solicited.

Dated: May 6, 2003

Respectfully submitted,

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